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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,836	03/28/2000	Hisashi Ohtani	SEL 173	5046

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EXAMINER

VU, HUNG K

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/535,836

Applicant(s)

OHTANI ET AL.

Examiner

Hung K. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 13-18 and 25-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 19-24 and 28-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Request for Continued Examination***

1 A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 05/28/02 has been entered. An action on the RCE follows.

### ***Claim Objections***

2. Claims 28 and 34 are objected to because of the following informalities: In claims 28 and 34, line 12, "though" should be changed to "through" for clarity. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 40, 44, and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. (PN 6,384,818).

Yamazaki et al. discloses, as shown in Figures 2C and 8A-9B, a semiconductor device comprising,

- a thin film transistor formed over a substrate (101), the thin film transistor having a semiconductor layer (102) and a gate layer electrode (119-122) adjacent to the semiconductor layer with a gate insulating film (106) interposed there between;

- a first insulating film (145) formed over the thin film transistor;

- a first wiring layer (146-150) formed on the first insulating film;

- a second wiring layer (152-155) formed on the first wiring layer;

- a second insulating film (156,159) formed on the second conductive layer;

- a pixel electrode (160-161) formed on the second insulating film, the pixel electrode being connected to the second wiring layer through a contact hole provided in the second insulating film;

- wherein the second wiring layer is directly connected to the semiconductor layer through a contact hole provided in the first insulating film.

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With regard to claim 44, Yamazaki et al. discloses the semiconductor device is selected from the group consisting of an active matrix liquid-crystal display device, an active matrix EL display device, and an active matrix EC display device.

With regard to claim 45, Yamazaki et al. discloses the semiconductor device is selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display device, a car navigation device, a personal computer, and a portable information terminal.

4. Claim 40 and 44 is rejected under 35 U.S.C. 102(b) as being anticipated by Zhang (PN 5,777,701).

Zhang discloses, as shown in Figure 1, a semiconductor device comprising,

- a thin film transistor formed over a substrate (101), the thin film transistor having a semiconductor layer (104,106) and a gate layer electrode (110) adjacent to the semiconductor layer with a gate insulating film (109) interposed there between;

- a first insulating film (112) formed over the thin film transistor;

- a first wiring layer (113) formed on the first insulating film;

- a second wiring layer (115) formed on the first wiring layer;

- a second insulating film (171) formed on the second conductive layer;

- a pixel electrode (118) formed on the second insulating film, the pixel electrode being connected to the second wiring layer through a contact hole provided in the second insulating film;

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wherein the second wiring layer is directly connected to the semiconductor layer through a contact hole provided in the first insulating film.

With regard to claim 44, Zhang discloses the semiconductor device is selected from the group consisting of an active matrix liquid-crystal display device, an active matrix EL display device, and an active matrix EC display device.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12, 19-24, 28-33, 41-43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (PN 5,777,701) in view of Yamazaki (PN 5,990,542, of record).

Zhang discloses all of the claimed limitations except the first insulating film comprising an organic material. However, Yamazaki discloses a semiconductor device comprising a first insulating film (116) comprising an organic material (polyimide resin or acrylic resin). Note Figures 1A-4 of Yamazaki. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the inter-layer insulating film of Zhang comprising an organic material, such as taught by Yamazaki in order to reduce the capacitance coupling between the conductive layers.

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With regard to claims 2-3, 8-9, 20-21, 29-30 and 41-42, Zhang and Yamazaki disclose all of the claimed limitations except the material of the first conductive layer and the second conductive layer. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first conductive layer and the second conductive layer of Zhang and Yamazaki having the material as claimed because aluminum and titanium provide better conductivity.

With regard to claims 5, 11, 23, 32, 38, and 44, Zhang and Yamazaki disclose wherein the semiconductor device is selected from the group consisting of an active matrix liquid-crystal display device, an active matrix EL display device, and an active matrix EC display device.

With regard to claims 6, 12, 24, 33, 39, and 45, Zhang and Yamazaki disclose all of the claimed limitations except the semiconductor device is selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display device, a car navigation device, a personal computer, and a portable information terminal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the device of Yoon and Yamazaki into the group as claimed in order to provide a typical flat panel display.

6. Claims 1-12, 19-24 and 28-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (PN 5,760,429) in view of Yamazaki (PN 5,990,542, of record).

Yano et al. discloses, as shown in Figures 1(g), 2, 3 and 4(g), a semiconductor device comprising,

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a transistor formed over a substrate (100), the transistor having a source/drain layer (1c) and a gate layer electrode (1b) adjacent to the semiconductor layer with a gate insulating film interposed therebetween;

a first insulating film (21) formed over the transistor;

a first conductive layer (41B) formed on the first insulating film;

a second conductive layer (42B) formed on the first conductive layer;

a second insulating film (23) formed on the second conductive layer;

a pixel electrode (43B) formed on the second insulating film, the pixel electrode being connected to the second conductive layer through a contact hole provided in the second insulating film;

wherein the second conductive layer is connected to the semiconductor layer through a contact hole provided in the first conductive layer and the first insulating film.

Yano et al. discloses all of the claimed limitations except the transistor is the thin film transistor and the inter-layer insulating film comprising an organic material. However, Yamazaki discloses a semiconductor device comprising a thin film transistor and a first insulating film (116) comprising an organic material (polyimide resin or acrylic resin). Note Figures 1A-4 of Yamazaki. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the transistor and the inter-layer insulating film of Yano comprising a thin film transistor and an organic material, such as taught by Yamazaki in order to simplify the configuration of the transistor layout and reduce the capacitance coupling between the conductive layers.



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With regard to claims 2-3, 8-9, 20-21, 29-30, 35-36, and 41-42, Yano et al. and Yamazaki disclose all of the claimed limitations except the material of the first conductive layer and the second conductive layer. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first conductive layer and the second conductive layer of Yano et al. and Yamazaki having the material as claimed because aluminum and titanium provide better conductivity.

With regard to claims 5, 11, 23, 32, 38, and 44, Yano et al. and Yamazaki disclose wherein the semiconductor device is selected from the group consisting of an active matrix liquid-crystal display device, an active matrix EL display device, and an active matrix EC display device.

With regard to claims 6, 12, 24, 33, 39, and 45, Yano et al. and Yamazaki disclose all of the claimed limitations except the semiconductor device is selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display device, a car navigation device, a personal computer, and a portable information terminal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the device of Yano et al. and Yamazaki into the group as claimed in order to provide a typical flat panel display.

7. Claims 1-12, 19-24, 28-33 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (PN 6,384,818).

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Yamazaki et al. discloses, as shown in Figures 2C and 8A-9B, all of the claimed limitations except the first insulating film comprising an organic material. However, Yamazaki discloses other upper insulating films (151, 156, and 159) forming above the first insulating film comprising an organic material (polyimide). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first insulating film of Yamazaki et al. comprising an organic material in order to further reduce the capacitance coupling between the conductive layers and to simplify the process steps.

With regard to claims 2, 8, 20, 29 and 41, Yamazaki discloses all of the claimed limitations except the material of the first conductive layer is selected from the group consisting of aluminum and a material predominantly composed of aluminum. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first conductive layer of Yamazaki having the material selected from the group consisting of aluminum and a material predominantly composed of aluminum because aluminum provides better conductivity.

With regard to claims 6, 12, 24, and 33, Yamazaki et al. discloses the semiconductor device is selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display device, a car navigation device, a personal computer, and a portable information terminal.

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With regard to claims 3, 9, 21, 30, and 42, Yamazaki et al. discloses all of the claimed limitations except the material of the second metallic layer is selected from the group consisting of titanium and a material predominantly composed of titanium. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the second metallic layer of Yamazaki having the material selected from the group consisting of titanium and a material predominantly composed of titanium because titanium is easier to form, better adhesive, and better conductivity.

With regard to claims 5, 11, 23, and 32, Yamazaki et al. discloses wherein the semiconductor device is selected from the group consisting of an active matrix liquid-crystal display device, an active matrix EL display device, and an active matrix EC display device.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 7, 19, 28, 34 and 40 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 7:00-5:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the

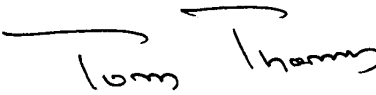
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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

August 9, 2002

  
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